AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A method of determining data routing paths in a communication network including a multiplicity of nodes, the method comprising:

a) ensuring that at least a portion of said multiplicity of nodes are connected,

b) for said nodes of said portion, calculating possible paths between a departure node and an arrival node , allowing for at least two chosen criteria, and then deducing an ideal solution from performances of said possible paths based on said at least two chosen criteria,

c) assigning each possible path a value of interest allowing for said ideal solution , and then classifying said possible paths allowing for their respective values of interest, and

d) selecting from said classified possible paths a set of k best classified paths, in order to route data via one of said k paths.

2. (previously presented): A method according to claim 1, characterized in that step a) begins by determining from said multiplicity of nodes all the pairs of nodes that can establish between them an oriented link each supporting at least one chosen local constraint, after which it is ensured that all the nodes of said pairs are connected.

3. (previously presented): A method according to claim 1, characterized in that at the end of step b) there are retained from said possible paths those that each satisfy at least one

chosen global constraint so that in step c) values of interest are assigned to said retained possible paths.

4. (previously presented): A method according to claim 1, characterized in that at least one of said criteria is of a non-additive type.

5. (currently amended): A method according to claim 4, characterized in that step b) integrates a trace storing a route corresponding to a partial path, in order to detect and prevent repetitive cycles in the paths under construction.

6. (previously presented): A method according to claim 5, characterized in that in step b), during the procedure of eliminating said partial paths, there are retained solutions that are weakly non-dominated on the non-additive criterion.

7. (previously presented): A method according to claim 1, characterized in that connectivity is verified by a mechanism of propagation from the departure node to all the other nodes of said multiplicity of nodes, so that each node is visited.

8. (currently amended): A method according to claim 1, characterized in that in step b) representative performance values of said possible paths ~~performance~~ are determined for each path with respect to each of said at least two chosen criteria and a path for which said performance values are non-dominated is qualified as a possible path .

9. (currently amended): A method according to claim 8, characterized in that in step b) a best performance value observed over said possible paths, referred to as an optimum value, is determined for each ~~criterion~~ of said at least two chosen criteria and said ideal solution is then constructed in the form of a multiplet of components constituted of the various optimum values thus determined.

10. (currently amended): A method according to claim 9, characterized in that in step c) said value of interest assigned to each possible path characterizes the greatest value of the components associated with the ~~various~~ at least two chosen criteria of a weighted Tchebychev function of differences between the performance of said each possible path and the corresponding optimum value of said ideal solution.

11. (previously presented): A method according to claim 10, characterized in that said k possible paths retained have a set of k lowest values of interest.

12. (currently amended): A method according to claim 2, ~~characterized in that~~ wherein the at least one said chosen local ~~and/or global constraints are~~ constraint is selected from a group comprising at least a minimum bandwidth required, the maximum length of the path, the maximum duration of the path, at least one prohibited link, ~~the maximum number of hops on the path,~~ and a path color restriction.

13. (previously presented): A method according to claim 1, characterized in that said criteria are selected from a group comprising at least an available bandwidth, the number of hops on a path, and the duration of the path.

14. (previously presented): A method according to claim 13, characterized in that said chosen criteria used in step b) comprise the available bandwidth and the duration of the path.

15. (previously presented): A method according to claim 14, characterized in that in step b) said criterion relating to the duration of the path is impacted by a penalty.

16. (previously presented): A method according to claim 15, characterized in that said penalty applies to the administration cost of the path.

17. (original): A method according to claim 1, characterized in that said criteria are chosen as a function of the type of service required.

18. (original): A method according to claim 1, characterized in that said chosen criteria are weighted as a function of their importance in the light of management information.

19. (currently amended): A method according to claim 2, characterized in that said ~~constraints~~ at least one chosen local constraint and ~~their~~ its associated ~~values are~~ value is chosen as a function of the quality of service required.

20. (currently amended): A device for determining data routing paths in a communication network including a multiplicity of nodes, wherein the device includes processing means, the processing means comprising:

a) an ensuring module which ensures that at least a portion of said multiplicity of nodes are connected,

b) a calculation module which, for said nodes of said portion, calculates possible paths between a departure node and an arrival node, allowing for at least two chosen criteria, and then deduces an ideal solution from performances of said possible paths based on said <u>at least two chosen</u> criteria,

c) an assignment module which assigns each possible path a value of interest allowing for said ideal solution, and then classifies said possible paths allowing for their respective values of interest, and

d) a selection module which selects from said classified possible paths a set of k best classified paths, in order to route data via one of said k paths.

21. (previously presented): A device according to claim 20, characterized in that said processing means further comprises:

a determining module which determines from said multiplicity of nodes all the pairs of nodes that can establish between them an oriented link each supporting at least one chosen local constraint, after which the ensuring module ensures that all the nodes of said pairs are connected.

22. (previously presented): A device according to claim 20, characterized in that said processing means further comprises:

a retaining module which retains from said possible paths those that each satisfy at least one chosen global constraint so that values of interest are assigned to said retained possible paths.

23. (previously presented): A device according to claim 20, characterized in that at least one of said criteria is of a non-additive type.

24. (currently amended): A device according to claim 23, characterized in that said processing means further comprises:

an integration module which integrates into the computation of said possible paths a trace storing a route corresponding to a partial path, in order to detect and prevent <u>repetitive</u> cycles in the paths under construction.

25. (previously presented): A device according to claim 24, characterized in that said processing means further comprises:

a retaining module which retains solutions that are weakly non-dominated on the non-additive criterion during the procedure of eliminating said partial paths.

26. (previously presented): A device according to claim 20, characterized in that said processing means further comprises:

a verification module which verifies connectivity by a mechanism of propagation from the departure node to all the other nodes of said multiplicity of nodes, so that each node is visited.

27. (currently amended): A device according to claim 20, characterized in that said processing means further comprises:

a determination module which determines representative performance values of said possible paths ~~performance~~ for each path with respect to each of said at least two chosen criteria and qualifies a path for which said performance values are non-dominated as a possible path.

28. (currently amended): A device according to claim 27, wherein the determination module further determines a best performance value observed over said possible paths, referred to as an optimum value, for each ~~criterion~~of said at least two chosen criteria, and then to construct said ideal solution in the form of a multiplet of components constituted of the various optimum values thus determined.

29. (currently amended): A device according to claim 28, characterized in that said processing means are adapted to assign to each possible path the value of interest that characterizes the greatest value of the components associated with the ~~various~~ at least two chosen criteria of a weighted Tchebychev function of differences between the performance of said possible path and the corresponding optimum value of said ideal solution .

30. (previously presented): A device according to claim 29, characterized in that said k possible paths retained have a set of k lowest values of interest.

31. (currently amended): A device according to claim 21, ~~characterized in that said~~ wherein the at least one chosen local ~~and/or global constraints are~~ constraint is selected from a group comprising at least a minimum bandwidth required, ~~the maximum length of the path,~~ the number of hops on the path, at least one prohibited link, and a path color restriction.

32. (previously presented): A device according to claim 20, characterized in that said criteria are selected from a group comprising at least an available bandwidth, the number of hops on a path, and the duration of the path.

33. (previously presented): A device according to claim 32, characterized in that said chosen criteria comprise the available bandwidth and the duration of the path.

34. (previously presented): A device according to claim 33, characterized in that said processing means further comprises:

an impact module which impacts said criterion relating to the duration of the path by a penalty.

35. (previously presented): A device according to claim 34, characterized in that said penalty applies to the administration cost of the path.

36. (original): A device according to claim 20, characterized in that said criteria are chosen as a function of the type of service required.

37. (original): A device according to claim 20, characterized in that said chosen criteria are weighted as a function of their importance in the light of management information.

38. (currently amended): A device according to claim 21, characterized in that said ~~constraints~~ at least one chosen local constraint and ~~their~~ its associated ~~values are~~ value is chosen as a function of the quality of service required.

39. (previously presented): The method of claim 1, wherein the communication network is an IP communication network.

40. (previously presented): The method of claim 1, wherein the method is implemented with link state routing protocols supporting TE-LSA traffic management.